VERIFICATION OF TRANSLATION

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(TRANSLATION)

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[Type of Document]   Claim(s)

[Claim 1]

A classification dictionary updating apparatus comprising:

an update proposal receiving unit that receives a proposal for updating a hierarchical classification dictionary which has a hierarchical structure which includes a class that defines the hierarchical structure, a property that defines a hierarchical class structure, and an attribute that is a detailed information field of the class and the property, and in which a sub classification class inherits a property of an upper classification class;

a proposal history storing unit that stores at anytime the update proposal received by the update proposal receiving unit;

an approximate proposal extracting unit that extracts the approximate proposal similar to the update proposal received by the update proposal receiving unit by searching for the past update proposal stored by the update proposal receiving unit; and

an approximate proposal presenting unit that presents the approximate proposal extracted by the approximate proposal extracting unit.

[Claim 2]

The classification dictionary updating apparatus according to claim 1, wherein the approximate proposal presented by the approximate proposal presenting unit contains a content of the update proposal received by the update proposal receiving unit, a result of evaluation indicating one of rejection and acceptance of the update proposal received by the update proposal receiving unit, a content of a comment on the update proposal received by the update proposal receiving unit, and information on a degree

of approximation that is a result of calculation of the
degree of approximation.

[Claim 3]

The classification dictionary updating apparatus
according to claim 1, wherein when the update proposal
received by the update proposal receiving unit is an
editing proposal for editing one of an existing class and a
property, the approximate proposal extracting unit searches
the past update proposal for a proposal with a highest
degree of approximation based on one of an attribute of the
proposal and a content of the proposal for editing for the
past update proposal to extract it as an approximate
proposal similar to the proposal for editing.

[Claim 4]

The classification dictionary updating apparatus
according to claim 1, wherein when the update proposal
received by the update proposal receiving unit is a
proposal for adding one of a new class and a property, the
approximate proposal extracting unit searches the past
update proposal for a proposal with a highest value of
accumulated degree of approximation based on respective
attributes of the proposal for adding, to extract it is an
approximate proposal similar to the proposal for adding.

[Claim 5]

The classification dictionary updating apparatus
according to claim 1, wherein when the update proposal
received by the update proposal receiving unit is an adding
proposal for adding a new class, the approximate proposal
extracting unit searches the past update proposal for a
proposal with a highest degree of similarity to a
collection of properties of the proposal for adding, to
extract it is an approximate proposal similar to the
proposal for adding.

[Claim 6]

The classification dictionary updating apparatus according to claim 4 or 5, comprising an addition target searching unit that is configured to, when the update proposal received by the update proposal receiving unit is an adding proposal for adding one of a new class and a property, advise of an addition target where the proposal for adding is to be added, according to a location of the approximate proposal extracted by the approximate proposal extracting unit.

[Claim 7]

The classification dictionary updating apparatus according to claim 6, wherein when the proposal for adding is a proposal for adding a new class, the addition target searching unit advises of the addition target according to a hierarchical structure of the approximate proposal found as a result of search based on a part or a whole of properties of the proposal for adding.

[Claim 8]

The classification dictionary updating apparatus according to claim 6, wherein when the proposal for adding is a proposal for adding a new class, the addition target searching unit advises of the addition target of the proposal for adding according to a result of comparison between a property of the approximate proposal found as a result of search based on a content of an attribute of the proposal for adding, and a property of the proposal for adding.

[Claim 9]

The classification dictionary updating apparatus according to claim 6, wherein when the proposal for adding is a proposal for adding a new property, the addition target searching unit advises that a class that defines the

approximate proposal is presented as the addition target of
the proposal for adding.

[Claim 10]

The classification dictionary updating apparatus
according to claim 1, comprising a proposal advice
presenting unit that is configured to advise of a result of
evaluation indicating rejection of the update proposal,
when the approximate proposal extracted by the approximate
proposal extracting unit is identical with the update
proposal received by the update proposal receiving unit.

[Claim 11]

The classification dictionary updating apparatus
according to claim 1, comprising a proposal advice
presenting unit that is configured to advise of a result of
evaluation of the approximate proposal extracted by the
approximate proposal extracting unit as a result of
evaluation of the update proposal received by the update
proposal receiving unit.

[Claim 12]

The classification dictionary updating apparatus
according to claim 10 or 11, comprising an evaluating and
commenting unit that makes a dictionary manager evaluate
and give comment on the update proposal according to the
result of evaluation given as advice.

[Claim 13]

The classification dictionary updating apparatus
according to claim 1, comprising:

a history statistics analyzing unit that generates
statistics and analyzes a history of the update proposals
stored in the proposal history storing unit; and

a reuse proposal presenting unit that extracts a
proposal to reuse from the history statistics analyzing
unit according to the statistics of the history and the

result of analysis, notifies a proposer of the reuse, and presents the proposal to reuse.

[Claim 14]

The classification dictionary updating apparatus according to claim 13, comprising a degree-of-attention presenting unit that presents a class, a property, and an attribute with a high degree of attention from the history statistics analyzing unit according to the statistics of the history and the result of analysis.

[Claim 15]

The classification dictionary updating apparatus according to claim 1, comprising:

a proposal draft receiving unit that receives a proposal approximate to a proposal draft;

a simulative approximate proposal extracting unit that makes the approximate proposal extracting unit search for the approximate proposal of the proposal draft received by the proposal draft receiving unit; and

a simulative approximate proposal presenting unit that presents the approximate proposal extracted by the simulative approximate proposal extracting unit.

[Claim 16]

A classification dictionary updating program for causing the computer to perform:

Updating proposal receiving function that receives a proposal for updating a hierarchical classification dictionary which has a hierarchical structure which includes a class that defines the hierarchical structure, a property that defines a hierarchical class structure, and an attribute that is a detailed information field of the class and the property, and in which a sub classification class inherits a property of an upper classification class;

a proposal history storing function that stores

anytime the update proposal received by the update proposal receiving function;

an approximate proposal extracting function that extracts an approximate proposal similar to the update proposal received by the update proposal receiving function by searching the past update proposal stored by the proposal history storing function; and

an approximate proposal presenting function that presents an approximate proposal extracted by the approximate proposal extracting function.

[Claim 17]

A classification dictionary updating method, comprising:

a step of receiving a updating proposal that receives a proposal for updating a hierarchical classification dictionary which has a hierarchical structure which includes a class that defines the hierarchical structure, a property that defines a hierarchical class structure, and an attribute that is a detailed information field of the class and the property, and in which a sub classification class inherits a property of an upper classification class;

a step of storing the proposal history that stores anytime the update proposal received by the update proposal receiving step;

a step of extracting approximate proposal that extracts an approximate proposal similar to the update proposal received by the update proposals receiving step by searching for the past update proposal stored by the proposal history storing step; and

a step of presenting approximate proposal that presents the approximate proposal extracted by the approximate proposal extracting step.

[Type of Document] Description

[Title of the Invention] Classification dictionary
updating apparatus, classification dictionary updating
program and classification dictionary updating method

[Technical Field]

[0001]

The present invention relates to a classification
dictionary updating apparatus, a classification dictionary
updating program, and a method for updating a
classification dictionary.

[Background Art]

[0002]

A hierarchical database, which is exemplified by an
object-oriented database (OODB) and an object relational
database (ORDB), has a hierarchical structure in which sub
classes inherit properties (property) of upper classes. In
such a hierarchical database, the number of properties of
the sub classes increases with successions from the upper
classes. The successions of the properties of the upper
classes to the sub classes are generally called
"inheritance", such technology is described in a Non-Patent
literature 1.

[0003]

In the object-oriented database, a classification of
one level is generally called a "class". On the other hand,
in the object relational database (ORDB), a table that
permits the inheritance corresponds to this. Between the
tables with a hierarchical relation, the properties are
inherited from upper tables to sub tables, in other words,
header information of a column constituting an upper table
is inherited to a sub table. Data having the same type of
property and belonging to a certain class of each level is
called an "instance", and a collection thereof is called a

"population" of data. The population of data is usually stored in a structure called table in a relational database (RDB) or an ORDB. A string of properties making up a table is called a header of the table.
     [0004]
     One known hierarchical database is defined by ISO13584 Parts Library Standard (hereinbelow referred to as "PLIB" standard), which is an international standard for implementing an electronic catalogue system which electronically providing product information. The "PLIB" standard is an international standard consisting of a plurality of "Parts"(usually translated "Part") and defines a manner of object-oriented description of products or parts library data and a semantics for its file exchange format, in other words, defines what kind of terms, manner of description, and data type are to be employed. Part 42 (Part Issue No. 42) of the "PLIB" standard has same contents with the IEC61360-2 (Part Issue No. 2). The standard classifies products in an object-oriented manner, clarifies a group of properties characterizing each class, and realizes a file exchange of the contents corresponding to the class, and therefore, the concept of property inheritance is naturally incorporated herein. Further, since the standard is formulated based on the ISO6523 "Structure for Identification of organizations and organization parts," with the use of the International Code Designator (ICD) defined by ISO 6523, in particular, an internationally unique identifier can be allocated to each property.
     [0005]
     In recent years, systems based on the "PLIB" standard are proposed (Patent Literatures 1 and 2).
     [0006]

[Non Patent Literature 1] Object-Oriented Concepts, Databases, and Applications, Edited by Won Kim, 1989, ACM Press.

[Patent Literature 1] JP-A 2004-177996 (KOKAI)

[Patent Literature 2] JP-A 2004-178015 (KOKAI)

[Disclosure of Invention]

[Problem to be Solved by the Invention]

[0007]

The "PLIB" standard defines the data exchange format according to a basic concept that the technological information of products should be represented by "dictionary" and "contents." Here, "dictionary" is a hierarchical classification dictionary that has a hierarchical structure where a sub level inherits a property of an upper level. Such a hierarchical classification dictionary is formed from a class that defines the hierarchical structure, a property that is defined for the class, and a field (also referred to as an attribute) that represents a class and property.

[0008]

Various tools and systems are provided for building such hierarchical classification dictionary. For example, PLIB-EDITOR (a dictionary building tool provided by LISI-ENSMA of France:http://www.plib.ensma.fr/), is representative).

[0009]

The PLIB-EDITOR tool, however, does not have a function to accept an update proposal such as edition of or addition to the dictionary. The update proposal (edition and addition) to the hierarchical classification dictionary is separately evaluated and assessed (so that comment and balloting are given to the proposal) based on experiences of a dictionary manager and a dictionary domain expert,

(DOMAIN EXPERT) and it is determined whether the proposal is accepted or rejected. When the update proposal (edition and addition) is determined to be accepted, the hierarchical classification dictionary can be corrected via the PLIB-EDITOR.

[0010]

The dictionary manager and the dictionary domain expert evaluate an update proposal (edition and addition) of the hierarchical classification dictionary and determine whether the update proposal is to be accepted, or rejected, for example, whenever the update (edition and addition) is made, and such procedure is inefficient.

[0011]

The present invention has been made in view of the above and has an object to provide the classification dictionary updating apparatus, the classification dictionary updating program and the method of updating classification dictionary in which the evaluation, such as accepted and rejected, of the updating proposal (edition and addition) can be readily brought out, whereby an efficient dictionary building is allowed

[Means for Solving Problem]

[0012]

To solve the problem described above and to achieve the object, the classification dictionary updating apparatus of the present invention includes an update proposal receiving unit that receives a proposal for updating a hierarchical classification dictionary which has a hierarchical structure which includes a class that defines the hierarchical structure, a property that defines a hierarchical class structure, and an attribute that is a detailed information field of the class and the property, and in which a sub classification class inherits a property

of an upper classification class; a proposal history
storing unit that stores anytime the update proposal
received by the update proposal receiving unit; an
approximate proposal extracting unit that extracts the
approximate proposal similar to the update proposal
received by the update proposal receiving unit by searching
for the past update proposal stored by the proposal history
storing unit; and an approximate proposal presenting unit
that presents the approximate proposal extracted by the
approximate proposal extracting unit.

[0013]

A classification dictionary updating program of the
present invention causes the computer to perform:

an update proposal receiving function that receives a
proposal for updating a hierarchical classification
dictionary which has a hierarchical structure which
includes a class that defines the hierarchical structure, a
property that defines a hierarchical class structure, and
an attribute that is a detailed information field of the
class and the property, and in which a sub classification
class inherits a property of an upper classification class;
a proposal history storing function that stores anytime the
update proposal received by the update proposal receiving
function; an approximate proposal extracting function that
extracts an approximate proposal similar to the update
proposal received by the update proposal receiving function
by the searching for the past update proposal stored by the
update history storing function; and an approximate
proposal presenting function that presents the approximate
proposal extracted by the approximate proposal extracting
function.

[0014]

A classification dictionary updating method of the

present invention includes a step of receiving an update
proposal that receives a proposal for updating a
hierarchical classification dictionary which has a
hierarchical structure which includes a class that defines
the hierarchical structure, a property that defines a
hierarchical class structure, and an attribute that is a
detailed information field of the class and the property,
and in which a sub classification class inherits a property
of an upper classification class; a step of storing the
proposal history that stores the update proposal received
by the update proposal receiving step; a step of extracting
approximate proposal that extracts an approximate a
proposal similar to the update proposal received by the
update proposals receiving step; and a step of presenting
approximate proposal that presents the approximate proposal
extracted by the approximate proposal extracting step.
[Effect of the Invention]
     [0015]
     According to the present invention, the received
update proposal to the hierarchical classification
dictionary is stored, while the past update proposal is
searched for an approximate proposal similar to the
received update proposal and the approximate proposal is
extracted and presented. Thus, the approximate proposal of
the updating proposal (edition and addition) of the
hierarchical classification dictionary can be presented
with the use of an existing dictionary editing history, and
the evaluation, such as accepted and rejected, of the
updating proposal (edition and addition) can be readily
brought out, whereby an efficient dictionary building is
allowed.
[Best Mode(s) of Carrying Out the Invention]
     [0016]

The exemplary embodiments of a classification dictionary update apparatus, a classification dictionary updating program, and a method of updating classification dictionary according to the present invention will be explained below in detail with the reference to the accompanying drawings.

[0017]

[First embodiment]

[1. Hierarchical classification dictionary]

A hierarchical classification dictionary employed in an electronic catalogue system that electronically provides product information will be first described. The hierarchical classification dictionary is a basis for embodiments.

[0018]

Fig. 1 is an explanatory diagram showing one example of a structure of a hierarchical classification dictionary. The hierarchical classification dictionary shown in Fig. 1 is a hierarchical database divided into plural levels. Each level has one or more classification items, and has a character that sub levels inherit properties of upper levels. Hence, the properties of the classification items in a sub level succeed the properties of the classification items in an upper level. Here, the hierarchical classification items is called class, and each class has its own properties. The hierarchical classification dictionary shown in Fig. 1 indicates a general inter-class property inheriting relation including a multiple inheritance. The classes are represented by A0, B0, B1, C0, C1, C2, C3, and D1, whereas the properties are represented by P0 to P7. The class C3 inherits the properties P0 and P4 from the parent class B1, while inheriting the property P7 from another parent class D1. The property P6 is a

uniquely defined property in the class C3. The class A0 and the class D1 are independent classes. A universal root (Universal Root) is an overarching class which hypothetically includes all root classes. The universal root may correspond to what is generally called a "universal set" in mathematics. Since the overarching class has no unique property and no property to be inherited, the overarching class can be treated as a parent class of any root class.

[0019]

PLIB standard (ISO13584 Parts Library), which is an international standard for implementing an electronic catalogue system that electronically provides product information, employs a simple tree structure as a hierarchical structure for classification of products and properties thereof. Hence, there is only one upper class (parent class). When the property of class other than the parent class is to be inherited, a special structure is employed for an import (citation) of a property called Case Of. This structure can be regarded as a modified version of the multiple inheritance of Fig. 1, in other words, a structure in which a tree is divided into a main line and a sub-line, the main line being formed from a parent class with a smallest number and the sub-line being given an alternate name "Case Of." In the ORDB or a general object-oriented database, not all the tables and classes have a parent table or a parent class. However, the table and the class which exists independently can be connected to a hypothetical "universal root" as shown in Fig. 1, so that all classes can be traced back to a single root, the feature of which can be similarly found in the simple tree structure.

[0020]

Fig. 2 is an explanatory diagram showing one example of a structure of a hierarchical classification dictionary of PLIB standard utilizing a simple tree. The hierarchical classification dictionary shown in Fig. 2 based on the PLIB standard does not have a universal root. In Fig. 2, a portion including A0, B0, B1, C0, C1, C2 [Translator's comment: 'A0, B0, B1, C0, C1, C2' is a mistake for "A0, B0, B1, C0, C1, C2, and C3"] of the tree structure represents information including classification levels. In the embodiment, the tree is a simple tree, and the class has only one upper class.

[0021]

In Fig. 2, the class A0 has sub classes B0 and B1. The class B0 has sub classes C0 and C1, whereas the class B1 has sub classes C2 and C3. Each product class has a property item and the property of an upper class is inherited to a sub class. In Fig. 2, contents 121, 122, 123, and 124 are actual product data. For example, the content 121 is product data of the type C0. The content 121 includes content data of three types. That is, the content 121 includes property values $x1$ and $x2$ of a property item $P0$, property values $y1$ and $y2$ of a property item $P1$, and property values $z1$ and $z2$ of a property item $P2$.

[0022]

The hierarchical classification dictionary as mentioned above is stored as a processed object of the embodiment in a dictionary DB 20 (see Fig. 7) described later. The manipulation on contents 121 to 124, which are actual content data, is not within the scope of the present invention. The contents 111 to 114 of Fig. 1 have similar characteristics with contents 121 to 124 of Fig. 2.

[0023]

The class and the property of the dictionary are defined by respective attributes. Here, "attribute" means an information field employed to define detailed information of each class and property. To avoid confusion with the "property" of the class, it is distinguished by referring to the detailed information fields of the class and the property as the "attribute" in the description. For each class, as shown in Fig. 3, attributes such as a class type (class type), a class name (code), a parent class (superclass), and a standard name (preferred name) are defined. For a property, as shown in Fig. 4, attributes such as a property code (code), a definition class (definition class), a data type (data type), and a standard name (preferred name) are defined.

[0024]

The attributes define the class and the property based on the PLIB definition thereby determining a format of the content, whether the content can be edited or not (as indicated by Add, Modify, and Delete in Figs. 3 and 4), whether the content is mandatory or optional (as indicated by Obligation in Figs. 3 and 4), or the like.

[0025]

[2. Structure of system]

A first embodiment of the present invention will be described in detail. Fig. 5 is a schematic diagram showing an a system structure example of a system including a classification dictionary updating apparatus according to the first embodiment. The system, as shown in Fig. 5, is assumed to be a server-client system where a server computer 1 (hereinafter referred to as a server) which is a classification dictionary updating apparatus, is connected to plural client computers 3 (hereinafter referred to as client terminals) which are terminal devices via a network

2 such as a Local Area Network (LAN) or the like.

[0026]

The client terminal 3 is a general personal computer, for example, and includes a dictionary WEB browser 30, a display device 31, and an input device 32 (see Fig. 7). By utilizing the dictionary WEB browser 30, the client terminal 3 can formulate and provide an updating proposal p (edition and addition) for the current dictionary DB 20 (see Fig. 7) in the server 1 via the network 2.

[0027]

Fig. 6 is a diagram of a module structure of the server 1. The server 1 includes a central processing unit (CPU) 101 which performs information processing, a read only memory (ROM) 102 which stores BIOS or the like and is a dedicated memory for reading out, a random access memory (RAM) 103 which rewritably stores various data, a hard disk drive (HDD) 104 which functions as various databases and stores various programs, a media drive 105, such as a CD-ROM drive, which serves to store information, externally distribute information, and externally acquire information, using a storing medium 110, a communication controlling device 106 that serves to transmit information to/from other external computer via the network 2, a display device 107 such as a cathode ray tube (CRT), or a liquid crystal display (LCD) that displays condition of processing and results of processing to an operator, and an input device 108, such as a keyboard or a mouse, which serves to receive input such as a command or information from the operator to supply the same to the CPU 101, and the data transmitted among the respective units are arbitrated by a bus controller 109.

[0028]

When the power of the server 1 is turned on by the

user, the CPU 101 starts up a program called loader inside the ROM 102, to read out an operating system (OS) which is a program for managing a hardware and a software of the computer from the HDD 104 to the RAM 103, and starts up the OS. The OS serves to activate a program, read in information, and store information according to a manipulation by the user. Known typical OS are, for example, Windows (registered trademark), and UNIX (registered trademark). A program running on those OS is called an application program. The application program is not limited to those running on a predetermined OS and may be a program that let the OS execute a part of various processing described later. Still alternatively, the application program may be included in a group of program files making up a predetermined application software or an OS.

[0029]

Here, the server 1 stores the classification dictionary updating program in the HDD 104 as an application program. In this sense, the HDD 104 functions as a storing medium that stores the classification dictionary updating program.

[0030]

A program installed in the HDD 104 of the server 1 is generally recorded in the storing medium 110 such as an optical disk such as a CD-ROM, or a DVD, various magneto optical disk, various magnetic disk such as a flexible disk, a media of various recording schemes such as a semiconductor memory, and the running program stored in the storing medium 110 is installed into the HDD 104. Here, a portable storing medium 110 such as an optical information recording medium such as a CD—ROM, or a magnetic media such as an FD can be employed as a storing medium that

stores a classification dictionary updating program.
Further, the classification dictionary updating program may
be taken in from outside via the communication controlling
device 106, for example, and installed into the HDD 104.

[0031]

When the classification dictionary updating program
running on the OS is started up, the server 1 follows the
classification dictionary updating program, and the CPU 101
executes various operations to collectively control the
respective units. Among the various operations executed by
the CPU 101 of the server 1, characteristic processing of
the embodiment will be described below.

[0032]

Fig. 7 is a block diagram showing a schematic
structure of a system including the server 1. As shown in
Fig. 7, the server 1 follows the classification dictionary
updating program, and includes a network communication unit
11, a proposal formulating and presenting unit 12, an
approximate proposal searching unit 13 which is an
approximate proposal extracting unit, an addition target
searching unit 14 which is an addition target searching
unit, an approximate proposal presenting unit 15 which is
an approximate proposal presenting unit, a proposal advice
presenting unit 16 which is a proposal advice presenting
unit, a proposal evaluation commenting unit 17 which is an
evaluation commenting unit, a dictionary building unit 18,
a proposal history database (DB) 19 which is a proposal
history storing unit, a dictionary database (DB) 20 which
is a hierarchical classification dictionary, a history
statistics analyzing unit 21 which is a history statistics
analyzing unit, a re-proposal advice presenting unit 22, a
reuse proposal extracting and notifying and presenting unit
23 which is a reuse proposal and presenting unit, and a

degree-of-attention-to-dictionary presenting unit 24 which
is a degree-of-attention presenting unit. Hereinbelow,
functions of the respective units will be described.

[0033]

When the server 1 receives an updating proposal p
(edition and addition) via the network communication unit
11, the approximate proposal searching unit 13 searches the
proposal history DB 19 for an approximate proposal. In
other words, the network communication unit 11 functions as
updating proposal receiving unit. Approximate proposals
found as a result of search are displayed by the
approximate proposal presenting unit 15. When the proposal
p is a proposal to add a new item, the addition target
searching unit 14 searches for an addition target to advise
to the proposal p. The proposal advise presenting unit 16
refers to the approximate proposal displayed by the
approximate proposal presenting unit 15 and the result of
search for the addition target by the addition target
searching unit 14, and provides a comment, an evaluation,
and an addition target of the proposal p to a dictionary
manager as a piece of advice. When the proposal p is an
edition proposal to the current item, the addition target
searching unit 14 does not need to search for the addition
target, and the proposal advise presenting unit 16 does not
need to provide advice on the addition target. The
proposal evaluation commenting unit 17 actually provides an
evaluation and a comment on the proposal p. Here, there
are two types of result of evaluation, i.e., "reject" and
"accept". When the result of evaluation of the proposal p
is "reject," the proposal p is stored in the proposal
history DB 19 as it is (a proposal historical storing unit),
whereas when the result of evaluation of the proposal p is
"accept", the proposal p is stored in the proposal history

DB 19 (a proposal historical storing unit), and at the same time the proposal p is built into the dictionary DB 20 by the dictionary building unit 18. The history statistics analyzing unit 21 provides statistics and analysis of the history of the proposal history DB 19. The degree-of-attention-to-dictionary presenting unit 24 presents a degree of attention of the dictionary (proposal history DB 19, dictionary DB 20) according to the history statistics and the result of analysis by the history statistics analyzing unit 21. For example, an item with a high degree of attention is shown in a different color. Further, the reuse proposal extracting and notifying and presenting unit 23 extracts a proposal to reuse, notify the proposer of the reuse, and presents a proposal to reuse, according to the history statistics and result of analysis by the history statistics analyzing unit 21. The proposer refers to the "advice for re-proposal" provided by the re-proposal advice presenting unit 22, and re-edits or formulates a proposal by the proposal formulating and presenting unit 12.

[0034]

Here, the re-edition or the formulation of the proposal may be performed from the dictionary WEB browser 30 of the client terminal 3, and the proposal formulating and presenting unit 12 may be structured only to present the proposal. Alternatively, the formulation of proposal may be realized locally so that the formulated proposal is provided to the server 1 via the network communication unit 11, and the proposal formulating and presenting unit 12 may be structured only to present the proposal.

[0035]

[3. Characteristic functions of the server 1]

Next, characteristic functions of the respective units

of the server 1 will be described in detail.

[0036]

[3-1. Proposal to the dictionary DB 20]

A request of addition and modification of the class and the property of the dictionary to the dictionary DB 20 which is a hierarchical classification dictionary is called update proposal in the present invention. The proposal history according to the present embodiment includes information such as a recorded proposal, a comment thereon, and an evaluation thereto, and is stored in the proposal history DB 19.

[0037]

The proposals to the dictionary DB 20 can be classified into two groups, i.e., a class proposal and a property proposal. Each of a group of class proposals and a group of property proposals includes two types of proposals, i.e., an addition proposal and an edition proposal.

[0038]

The addition proposal will be described. The property addition proposal includes, as shown in the exemplary structure in Fig. 8, mandatory contents of attributes of the property, and contents of "a comment reference" and "an evaluation" which are added to the proposal after the submission of the proposal. When the proposal is the class addition proposal, the proposal needs to include mandatory contents of attributes of the class as shown in an exemplary structure of Fig. 9.

[0039]

The edition proposal will be described. The edition proposal has a format as shown in Fig. 10. The format includes information of "proposal number", "proposal attribute", "proposal content", and "proposal target

reference", and information determined later based on the content of the proposal, such as "proposal classification", "proposal level", "comment reference", and "evaluation". The class edition proposal can be made for each class. The property edition proposal cannot be edited and manipulated but from the class where the property is defined. In Fig. 2, the property P1 is defined in the class B0. The property P1 is inherited by the sub classes C0 and C1 of the class B0. The edition of the property P1 is rejected in the C0 and C1 and permitted only in the B0.

[0040]

[3-2. Description of the approximate proposal searching unit 13 and the approximate proposal presenting unit 15]

A search of the proposal history DB 19 for the approximate proposal of the proposal by the approximate proposal searching unit 13, and a presentation of the result of search of the approximate proposal by the approximate proposal presenting unit 15 will be described with reference to a flowchart of Fig. 11.

[0041]

First at step S1, a format of an input proposal is checked. In the format check, each proposal is examined with respect to a permitted character, a symbol, and a maximum number of characters for each attribute and checked if the proposal follows the definition of PLIB.

[0042]

When the proposal format is determined to have a format based on the definition of PLIB (Yes at step S1), the process proceeds to step S2, where it is determined whether the proposal is the "addition proposal" or the "edition proposal."

[0043]

When the proposal is determined to be the edition
proposal, the process proceeds to step S3, where the
approximate proposal is searched according to "a technique
of searching for an approximate proposal based on a content
of proposal" (hereinafter referred to as "approximate
proposal searching method 1").

[0044]

On the other hand, when the proposal is determined to
be the addition proposal, the process proceeds to step S4,
where it is determined whether the proposal is the "class
proposal" or the "property proposal".

[0045]

When the proposal is determined to be the property
addition proposal, the process proceeds to step S5 where
the approximate proposal is searched for based on "a
technique of searching the approximate proposal according
to the sum of the degrees of approximation of respective
attributes (referred to as "approximate proposal searching
method 2")".

[0046]

When the proposal is determined to be the class
addition proposal, the process proceeds to step S6, where
one of the approximate proposal searching method 2 and the
approximate proposal searching method 3 is selected. The
approximate proposal searching method 3 is a technique to
search the approximate proposal based on the property
information of the class proposal. When the approximate
proposal searching method 2 is selected, the process
proceeds to step S5, whereas when the approximate proposal
searching method 3 is selected, the process proceeds to
step S7.

[0047]

The approximate proposal found as a result of search

is presented in step S8. The approximate proposal includes a content of proposal, a proposal evaluation, information on a comment on the proposal, and information on a degree of approximation which is a result of calculation of the degree of approximation. Fig. 12 is an example of an approximate proposal list of the class edition proposal, whereas Fig. 13 is an example of an approximate proposal list of a property addition proposal.

[0048]

Here, the approximate proposal searching methods 1, 2, and 3 are described in detail below.

[0049]

(1) Description of the approximate proposal searching method 1

The approximate proposal searching method 1 is a manner of search of the edition proposal. The proposal content is structured as shown in Fig. 10 as to include "proposal number", "proposal attribute name", "proposal content", and "proposal target reference".

[0050]

In the search for the approximate proposal, a proposal which has the same "proposal target reference", "proposal attribute name", and "proposal content" as the original proposal is searched for in the proposal history DB 19.

[0051]

Here, let an existing history proposal be indicated by pi and the content of a proposal px be defined as:

px.proposal_attribute_name=definition;

px.proposal_target_reference=JEMIMA_C00012;

px.proposal_content=definition2;

a degree of approximation $S(px, pi)$ of the existing history proposal pi and the proposal px can be calculated as:

$S(pi, px) = (W_1S$ (proposal target reference) $+ W_2S$

(proposal attribute name) + W_3S (proposal content))/ΣW_i (i=1, 2, 3).

Hereinbelow, S(pi, px) will be denoted as S(p). The characters W_1 to W_3 represent weights to respective degrees of approximation, and setting may differ for each system. The value of S(p) is calculated according to the setting. For example, when the setting is W_1=0.5, W_2=0.5, and W_3=10, the value of S(p) is the list of {0, 0.02%, 1%, 50%, 55%, 91%, 95%, 100%}.

[0052]

S(proposal target reference) indicates the degree of approximation of the proposal target reference of px and the proposal target reference of pi. When the condition "px.proposal_target_reference = pi.proposal_target_reference" is satisfied, the degree of approximation of the proposal target reference is "S(proposal target reference) = 1". When the proposal target reference is not included in the edition proposal, the degree of approximation of the proposal target reference does not need to be found.

[0053]

S(proposal attribute name) indicates the degree of approximation of the proposal attribute name of px and the proposal attribute name of pi. When the condition "px.proposal_attribute_name = pi.proposal_attribute_name" is satisfied, the degree of approximation of the proposal attribute is "S(proposal attribute name) = 1".

[0054]

S(proposal content) indicates the degree of approximation of the proposal content of px and the proposal content of pi. When the condition "px.proposal_content = pi.proposal_content" is satisfied, the degree of approximation of the proposal content is

"S(proposal content) = 1". The value of S(proposal content) can be determined to be one of {0, 0.5, 1} through the semantic factoring of the proposal content. When the value of S(proposal content) is determined to be 0.5, the proposal content of px and the proposal content of pi partially match with each other. The value assigned to S(proposal content) may be different from system to system.

[0055]

When the value of S(p) is highest, pi is the history proposal with the highest degree of approximation with px. According to the embodiment, the list of proposals with high degree of approximation to px is formed from history proposal pi with S(p) of equal to or higher than 50%. Fig. 12 is one example of the approximate proposal lists of px.

[0056]

(2) Description of approximate proposal searching method 2

The approximate proposal searching method 2 is a manner of search for the approximate proposal to the addition proposal for adding a new item. The proposal content such as shown in Fig. 8.is required to include all mandatory attributes defined in PLIB standard of ISO13584. The degree of approximation of the approximate proposal is the sum of the degrees of approximation of respective attributes. Note that, at the stage of proposal, the codes of the class and the property are not formally determined and hence, the degree of approximation of Code is not included in the calculation of the degree of approximation.

[0057]

Here, a property addition proposal py shown in Fig. 8 will be described as an example. The degree of approximation S(pi, py) of the existing property proposal history pi and the proposal py is calculated as:

S(pi,py) = (W₁S(definition class) + W₂S(data type) + W₃S(preferred name) + W₄S(short name) + W₅S(definition) + W₆S(unit) + W₇S(preferred letter symbol) + W₈S(synonymous name) + W₉S(property type classification) + W₁₀S(source document of definition) + W₁₁S(note) + W₁₂S(remark) + W₁₃S(condition) + W₁₄S (formula) + W₁₅S(format))/ΣWᵢ (i = 1, 2, ... 15). Here, S(definition class) indicates the degree of approximation of the definition class of the proposal py and the history proposal pi, and when the condition "pi.definition_class = py.definition_class" is satisfied, "S(definition class) = 1". S of other attributes are calculated similarly.

[0058]

The attributes are classified into main attributes and sub-attributes depending on the degree of importance thereof. The main attribute is a mandatory attribute, whereas the mandatory attribute is not always a main attribute. For example, the main attributes of the property are code, definition class, data type, preferred name, short name, definition, and unit as shown in hatched portions of Fig. 4, and other attributes are sub-attributes. The main attributes of the class are code, preferred name, short name, and definition as shown in hatched portions of Fig. 3, and other attributes are sub-attributes. The class of dictionary and the attribute of property can be changed or added, and the classification of the main attribute or the sub-attribute is also changeable.

[0059]

When the degrees of approximation are summed up, different weights are assigned to the main attribute and the sub-attribute for calculation. In the above example, when the weights W₁ to W₆ to the main attributes are 10, whereas the weights W₇ to W₁₅ to the sub-attributes are 1,

S(pi, py) can be represented as:

S(pi, py) = (10*S(definition class) + 10*S(data type) + 10*S(preferred name) + 10*S(short name) + 10*S(definition) + 10*S (unit) + 1*S(preferred letter symbol) + 1*S(synonymous name) + 1*S(property type classification) + 1*S(source document of definition) + 1*S(note) + 1*S(remark) + 1*S(condition) + 1*S(formula) + 1*S(format))/Σ(10*7+1*9).

[0060]

When the value of S(p) is highest, pi is the proposal with the highest degree of approximation with py. Fig. 13 is an example of approximate proposal of the property addition proposal.

[0061]

(3) Description of approximate proposal searching method 3

The approximate proposal searching method 3 is a manner of search for the approximate proposal according to the property of the class addition proposal and will be described with using Fig. 14.

[0062]

Fig. 14 is a flowchart showing a process sequence for searching an approximate proposal of a class addition proposal Cx based on a property of the class addition proposal Cx. As shown in Fig. 14, at step S11, search is started from an upper level of the existing dictionary hierarchy, and it is checked whether a class (indicated hypothetically as cls_a) which has all the properties of Cx exists or not.

[0063]

When the class with all the properties of Cx exists (Yes at step S11), cls_a is determined to be a candidate of the approximate proposal of the class addition proposal Cx

(step S12).

[0064]

When the class with all the properties of Cx does not exist (No at step S11), the process proceeds to step S13 where a class with largest number of properties of Cx is searched for (many search results may be found, and hypothetically are represented as cls_list), and it is determined whether there is a new property in properties of a new class Cx (step S14).

[0065]

When the properties of the new class Cx is determined not to include a new property (No at step S14), in other words, when it is determined that the added property has not been defined, the process proceeds to step S15 where cls_list is determined to be the candidate of the approximate proposal.

[0066]

On the other hand, when the properties of the new class Cx is determined to include a new property (Yes at step S14), in other words, when the added property is determined to have been defined, the process proceeds to step S16 where the approximate proposal to the new property is searched for and determined according to the above-described approximate proposal searching method 2, and a class (here hypothetically indicated as cls_p) which defines the approximate proposal is searched for and the process proceeds to step S17.

[0067]

At step S17, it is examined whether the above cls_p is defined by the class in cls_list which is the result of search at step S13, or by a sub class.

[0068]

When it is determined that cls_p is defined by a class

1 in cls_list or by a class sub than the class 1 (Yes at step S17), the class 1 is determined to be the candidate of the approximate proposal of the added class Cx (step S18).

[0069]

On the other hand, when it is determined that cls_p is not defined by a class in cls_list or by a sub class (No at step S17), cls_p and cls_list are determined to be the candidate of the approximate proposal of the added class proposal Cx (step S19).

[0070]

The foregoing is the approximate proposal searching method 3 in which the approximate proposal is searched for according to the property of the class addition proposal.

[0071]

Next, an example of search for the approximate proposal of a new class Cx (p1, p2, py) of a dictionary shown in Fig. 15 according to the approximate proposal searching method 3 will be described.

[0072]

The dictionary has classes from C1 to C6, each of which has defined properties. The new class Cx is made from a new property py which is defined by Cx and properties p1 and p2 inherited from the parent. In the embodiment, the property of the new class Cx is whole or a part of the new property defined by Cx and the inherited properties. Among the properties of Cx, p1 and p2 are already defined properties, whereas py is a newly added property.

[0073]

According to the process sequence shown in Fig. 14, since there is no class cls_a which includes all properties of Cx at step S11, the process proceeds to step S13. At step S13, the class list cls_list including properties p1

and p2 of the new class Cx is determined to be C1 and its sub classes C1 to C6 [Translator's comment: 'C1 to C6' is a mistake for "C2 to C6"].

[0074]

Since Cx has the new property py (Yes at step S14), the process proceeds to step S16, and the approximate proposal of the new property py is searched for according to the approximate proposal searching method 2. For example, if the approximate proposal of py is p8, it can be determined that p8 is defined by C6 at step S17. As a result, the class C6 and its sub class (if there is one) are determined to be the candidates of the approximate proposal of the new class Cx at step S18.

[0075]

Next, an example of search for the approximate proposal of the new class Cx' (p1, p7, p8) of the dictionary shown in Fig. 15 according to the approximate proposal searching method 3 will be described.

[0076]

According to the process sequence shown in Fig. 14, since there is no class cls_a which includes all properties of Cx' at step S11, the process proceeds to step S13. In step S13, the list of the classes that include a large number of properties of the new class Cx' is found to be C5(p1, p7), C6(p1, p8).

[0077]

Since the new class Cx' does not have the newly added property (No at step S14), the classes C5 and C6 are determined to be the candidates of the approximate proposal of the new class Cx' (step S15).

[0078]

Thus, the approximate proposal of the proposal can be found via the search of the proposal history DB 19.

[0079]

The approximate proposal thus found as a result of search is presented by the approximate proposal presenting unit 15. Further, a comment on and an evaluation of the proposal p, are presented together with the result of search for the addition target by the addition target searching unit 14 described later by the proposal advice presenting unit 16 as advice to the dictionary manager. Fig. 16 is an example of advice to the dictionary manager.

[0080]

[3-3. Description of the addition target searching unit 14 and the proposal advice presenting unit 16]

When a new class is to be added, the approximate proposal is searched for via the approximate proposal searching method 2 and the approximate proposal searching method 3 as described above. The addition target searching unit 14 and the proposal advice presenting unit 16 provide advice on the target of the addition of new class proposal based on the location of the approximate proposal found as a result of search.

[0081]

Here, a function of providing advice on the location where the addition proposal is to be added will be described, based on an example of the new class Cx (p1, p2, py) for the dictionary shown in Fig. 15.

[0082]

When the class Cx to be added has a new property, a location where the new property py is to be added is first determined. For the determination of the location of py, the approximate proposal of py needs to be found via the approximate proposal searching method 2. For example, as described above, if the approximate proposal of py is p8, advice to be provided would be to add py to C6 which

defines p8.

[0083]

For more detail, it can be seen that the property of Cx is {p1, p2, py}, that is, {p1, p2, p8}. The class C6 which has three properties of Cx is a candidate of the approximate proposal of Cx. However, C6 also includes properties p4 and p9 which are not defined by Cx other than p1, p2, and p8. The property p4 is inherited from the parent class C3, and the property p9 is defined by C6. Then, the advice to be given on the location where Cx is to be added would be:

(1) A route A of Fig. 15. A child of the class C3 and a parent of the class C6. The properties included in Cx are, then, {p1, p2, p4, p8};

(2) A route B of Fig. 15. A child of the class C6. The properties included in the Cx are, then, {p1, p2, p4, p8, p9}. When the class C6 has other child class, all C6 and child classes of C6 are candidate class as addition target.

[0084]

In this case, Cx cannot be added as the "child of the class C1" or as the "child of the class C3". The property p8 which is newly defined by Cx is already defined by the class C6. If Cx is added as the "child of the class C1" or the "child of the class C3", the property p8 would be doubly defined. In the present invention, the property is regarded as being unique and not allowed to be doubly defined. Hence, Cx cannot be added as the "child of the class C1" or as the "child of the class C3", and also cannot be added to others where the same phenomena occurs.

[0085]

The system recommends both A and B as the candidate location for the addition of Cx, and provides the

information together with the properties Cx would have in each additional cases to the dictionary manager. The dictionary manager selects the location for the addition based on the candidate locations included in the advice.

[0086]

Depending on the content of attribute defined by the class Cx, the approximate proposal found through search by the approximate proposal searching method 2 may be utilized for the advice on the addition target of Cx. First, the approximate proposal of Cx is searched for based on the content of the attribute defined by Cx according to the approximate proposal searching method 2. For example, if a proposal which is most approximate to Cx is C6, the property of Cx is compared with the property of the approximate proposal C6. According to the description, both A and B are suggested in the advice as the addition target of Cx.

[0087]

[3-4. Description of the proposal evaluation commenting unit 17]

The proposal evaluation commenting unit 17 actually provides an evaluation and a comment on the proposal p. The result of evaluation is given in two forms, "reject" and "accept".

[0088]

Here, Fig. 17 is a flowchart showing a proposal evaluation process. When evaluation and comment on the approximate proposal is provided by the proposal advice presenting unit 16 described above, the proposal evaluation commenting unit 17 let the dictionary manager evaluate the proposal as shown in Fig. 17 (step S21).

[0089]

As for the proposal in which "accept" is given as

result of an evaluation, the process proceeds to step S22, where it is determined whether the proposal is the edition proposal or the addition proposal.

[0090]

When the proposal is the edition proposal (Yes at step S22), the process proceeds to step S23, and the level of the proposal (high, average) is automatically determined. The level of the proposal is determined such that when the attribute of the proposal is a main attribute, the proposal level is "high", whereas when the attribute of the proposal is a sub-attribute, the proposal level is "average". Further at step S23, it is determined that the proposal classification is "Edit (proposal on edition)" or "Technical proposal (proposal on technique)". The determination on the classification of the proposal, i.e., either "Edit" or "Technical proposal" is performed by the dictionary manager. The result of determination is recorded in a column of "proposal classification", "level", of each edition proposal as shown in Fig. 10.

[0091]

On the other hand, when the proposal is not the edition proposal (No at step S22), i.e., when the proposal is the addition proposal, the proposal level and the proposal classification do not need to be determined.

[0092]

[3-5. Re-proposal advice presenting unit 22 and reuse proposal extracting and notifying and presenting unit 23]

The dictionary manager extracts a proposal to reuse based on the statistics and analysis of the history in the proposal history DB 19 by the history statistics analyzing unit 21, notifies the proposer of the reuse, and presents the proposal to reuse (reuse proposal extracting and notifying and presenting unit 23). More specifically, the

dictionary manager searches the proposal history for the approximate proposal of the proposal px, and presents the search results in the order of the degree of approximation.

[0093]

Further, the dictionary manager presents "advice on re-proposal" to the proposer (re-proposal advice presenting unit 22). In other words, the dictionary manager refers to the comment on the approximate proposal or the like, and provides comment on the proposal px. For example, the dictionary manager may refer to the comment and reach a conclusion that evaluation is "reject", yet the dictionary manager can provide comment as edition advice that the evaluation can be "accept" once certain content is changed. Such information as "re-proposal" of the proposal px and edition advice on the re-proposal are notified to the proposer via an electronic mail, or notified to the client terminal 3 of the proposer via the network 2, and clearly shown to the proposer. To highlight the notification, the pertinent proposal is shown in a different color, a different font, or the like. The proposer, on receiving the notification, sets out on the re-proposal.

[0094]

Further, the dictionary manager can search for the approximate proposal of a proposal pr, which is a rejected proposal in the proposal history DB 19, in the same manner as described above, and determine whether the proposal pr is worth re-proposal or not with reference to the comment on the approximate proposal or the like. When it is determined that the proposal pr is worth "re-proposal," as for the proposal pr, a "re-proposal" and the edition advice on the re-proposal can be notified to the client terminal 3 of the proposer via the electronic mail or the network 2, and thus clearly shown to the proposer.

[0095]

[3-6. Degree-of-attention-to-dictionary presenting unit 24]

The degree-of-attention-to-dictionary presenting unit 24 presents the degree of attention to the dictionary (proposal history DB 19, dictionary DB 20) based on the history statistics and analysis result by the history statistics analyzing unit 21. Thus, based on the statistics of the "proposal target reference", the "proposal target" with more proposals can be known. Then, such a "proposal target" (class or property) is explicitly shown as an item with higher degree of attention in the dictionary (proposal history DB 19, dictionary DB 20). Further, the attribute with more "proposal attributes" is explicitly shown as an item with higher degree of attention. The item with a higher degree of attention may be shown in a different color, a different font, or the like. The manner of indication may differ from system to system.

[0096]

Thus, according to the embodiment, the update proposal to the received hierarchical classification dictionary is stored in the proposal history storing unit, while the past update proposals stored in the proposal history storing unit is searched for an approximate proposal similar to the received update proposal and the approximate proposal is extracted and presented. Thus, the approximate proposal of the updating proposal (edition and addition) of the hierarchical classification dictionary can be presented with the use of an existing dictionary editing history, and the evaluation, such as accepted and rejected, of the updating proposal (edition and addition) can be readily brought out, whereby an efficient dictionary building is allowed.

[0097]

[Second embodiment]

Next, a second embodiment of the present invention will be described with reference to Fig. 18. The same components as in the first embodiment described above are denoted by the same reference characters and the description thereof will be omitted.

[0098]

In the embodiment, the proposer submits a proposal draft prior to a formal submission of the proposal so that the proposer submits a proposal with higher rate of acceptance, an approximate proposal to the proposal draft is searched for from the proposal history, and evaluation and comment on the proposal draft can be given as a pre-simulation, based on the evaluation result and comment on the approximate proposal found as a result of search.

[0099]

Fig. 18 is a flowchart showing a flow of the pre-simulation process of the proposal draft. The proposal draft has the same structure as the formal proposal as shown in Figs. 8 to 10. The pre-simulation process is performed on its own proposal draft prior to the formal submission of the proposal by the proposer. The proposer can determine whether to perform the pre-simulation process or not by selecting a mode in advance.

[0100]

As shown in Fig. 18, when a proposal draft p is input (Yes at step S31:a proposal draft receiving unit), and the pre-simulation to the proposal draft p is selected (Yes at step S32), the approximate proposal of the proposal draft p is searched for according to the technique described according to the first embodiment (step S33:a simulative approximate proposal extracting unit).

[0101]

When a most approximate proposal pk is searched at step S33, an evaluation and a comment on the approximate proposal pk are presented (step S34:a simulative approximate proposal presenting unit). The evaluation is a result whether the approximate proposal pk is accepted or rejected. The comment is a content of the comment by each of those concerned to the approximate proposal pk. Thus, the proposer can confirm necessity of re-edition of its own proposal draft p, and check the editing content.

[0102]

Thereafter, the proposer refers to the evaluation and the comment on the approximate proposal pk. When the proposer determines that there is a need of re-edition and selects re-editing the approximate proposal pk (Yes at step S35), the process returns to S31, where the system stands by for the input of re-edited proposal. Since the pre-simulation can be performed more than once, the re-edited proposal may be subjected to the pre-simulation again.

[0103]

On the other hand, the process from steps S31 to S34 is repeated, if it is selected that the re-edition of the approximate proposal pk is not performed (No at step S35), the proposal draft p is formally submitted (step S36).

[0104]

Here, the pre-simulation may not be performed on the proposal draft p. Then, the pre-simulation is not selected for the proposal draft p (No at step S32) and the proposal draft p is directly submitted (step S36).

[0105]

Thus, according to the embodiment, the proposer formulates the proposal draft prior to the formal submission of the proposal, and performs the pre-simulation

process on the proposal draft. Thus, the dictionary
proposer can re-modify or formulate a proposal which is
more easily accepted based on the proposal draft, according
to the evaluation and comment given as a result of the pre-
simulation, and provides the re-modified and formulated
update proposal as a formal update proposal, whereby an
efficient update (edition and addition) of the dictionary
is allowed.
[Brief Description of Drawings]
     [0106]
     [Fig. 1] An explanatory diagram showing one example
of a structure of a hierarchical classification dictionary,
which is a basis of embodiments.
     [Fig. 2] An explanatory diagram showing one example
of a structure of a hierarchical classification dictionary
of PLIB standard utilizing a simple tree.
     [Fig. 3] An explanatory diagram showing one example
of a dictionary revising-rule relating to a class.
     [Fig. 4] An explanatory diagram showing one example
of a dictionary revising-rule relating to a property.
     [Fig. 5] A schematic diagram showing a structure
example of a system including a classification dictionary
updating apparatus according to a first embodiment.
     [Fig. 6] A diagram of a module structure of a server.
     [Fig. 7] A block diagram showing a schematic
structure of the system including the server.
     [Fig. 8] An explanatory diagram showing a structure
example of a property addition proposal.
     [Fig. 9] An explanatory diagram showing a structure
example of a class addition proposal.
     [Fig. 10] An explanatory diagram showing a structure
example of an edition proposal.
     [Fig. 11] A flowchart showing a flow of a search

processing of an approximate proposal.

[Fig. 12] An explanatory diagram showing an approximate proposal list example of the class edition proposal.

[Fig. 13] An explanatory diagram showing approximate proposal list example of the property addition proposal.

[Fig. 14] A flowchart showing a process sequence for searching an approximate proposal of a class addition proposal Cx, based on a property included in Cx.

[Fig. 15] An explanatory diagram showing a search example of an approximate proposal according to an approximate proposal searching method 3.

[Fig. 16] A plan view showing an advice example to a dictionary manager.

[Fig. 17] A flowchart showing a proposal evaluation process.

[Fig. 18] A flowchart showing a flow of a pre-simulation processing of a proposal draft according to a second embodiment of the present invention.

[Explanations of Letters or Numerals]

[0107]

1	classification dictionary updating apparatus
11	updating proposal receiving unit
13	approximate proposal extracting unit
14	addition target searching unit
15	approximate proposal representing unit
16	proposal advice presenting unit
17	evaluation commenting unit
20	hierarchical classification dictionary
21	history statistics analyzing unit
23	reuse proposal and presenting unit
24	degree-of-attention presenting unit

[Type of Document] Abstract

[Abstract]
[Problem to be solved] To provide a classification dictionary updating apparatus, a classification dictionary updating program and a classification dictionary updating program in which the evaluation, such as accepted and rejected the updating proposal (edition and addition) can be readily brought out, whereby an efficient dictionary building is allowed.
[Solution] The update proposal to the received hierarchical classification dictionary 20 is stored in the proposal history storing unit 19, while the past update proposal stored in the proposal history storing unit 19 is searched for an approximate proposal similar to the received update proposal and the approximate proposal is extracted and the extracted approximate proposal is presented. Thus, the approximate proposal of the updating proposal (edition and addition) of the hierarchical classification dictionary 20 can be presented with the use of an existing dictionary editing history, and the evaluation, such as accepted and rejected, of the updating proposal (edition and addition) can be readily brought out, whereby an efficient dictionary building is allowed.
[Chosen Drawing] Fig. 7